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AUTHOR Allen, D. I.; Greenwood, J.
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ABSTRACT

The term "open education" has often been confused with the concept of open area classrooms, not only among educators and the public, but in research as well. The effects of these two concepts were tested in a study of 56 teachers and their students in fifth- and sixth-grade classes in British Columbia. The results showed classroom types seemed to have little effect on teacher job satisfaction in any case, and program openness only made a difference to teachers with low need for structure, who preferred open programs. Students showed significantly more positive attitudes in three of the situations studied: when involved in closed programs taught by teachers with high need for structure in self-contained classrooms, when involved in open programs taught by teachers with low need for structure, in open area classrooms, and when involved in open programs taught by teachers with low need for structure in self-contained classrooms. (Author/PD)

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PROGRAM OPENNESS AND CONCEPTUAL LEVEL: SOME RELATIONSHIPS IN OPEN AREA AND SELF-CONTAINED CLASSROOMS

D.I. Allen

State College of Victoria at Coburg

J. Greenwood

Simon Fraser University

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Debate over the relative merits of different instructional styles has gone on for many years without any clear conclusions emerging. During the 1970's arguments became somewhat more intense and confined. The introduction of the term 'open education' for a loosely defined orientation towards educational goals and processes that was similar to earlier concepts of naturalistic, progressive, democratic and informal education, coincided in North America with the building of large numbers of classrooms that were commonly referred to as Open Areas, Open Plan or Open Space. The result was considerable confusion among teachers, administrators and the public about openness in programs and in building design, and a number of research studies which assumed that the two were equivalent.

The work of Barth (1970), Bussis and Chittenden (1969), Traub et al (1972) and Walberg and Thomas (1971) in consolidating the writings of others and developing reasonably clear descriptions of Open Education, has helped considerably. Their work has led to the development of a number of instruments for measuring the openness of educational programs, perhaps the most widely used being the Teacher Questionnaire (Evans, 1971; Walberg and Thomas, 1971) and the Dimensions of Schooling (DISC), (Traub et al, 1972). These instruments have made it possible to consider type of classroom and openness of program as separate variables and to examine relationships between them.

Most early writing about open area classrooms was descriptive and uncritical, and many research studies done more recently suffer design defects which make it very hazardous to generalise about their effects. One common problem has been to confuse architectural and programmatic openness as described above. Another has been to use children rather than classrooms as the unit of analysis. Frequently comparative studies compare one open area classroom with one self-contained classroom, an approach which may tell something about the teachers, the programs, the students, the communities or the facilities, or some combinations of these factors, but cannot yield any generalisable findings about the effects of open plan classrooms in general. However, a review of a number of these studies may yield at least tentative conclusions. Lukasevich (1976) reviewed 31 studies which considered effects on achievement and 25 concerned with non-cognitive outcomes. Of the achievement studies, 15 showed no significant differences; 8 favoured open space classrooms; and 9 favoured those which were self-contained. Of the non-cognitive studies, 12 showed no significant differences; 11 favoured open space; and 2 favoured self-contained classrooms. Other reviews (e.g. Martin and Pavan, 1976) have been even more inconclusive.

If one looks more broadly at the extensive body of research on teacher effectiveness, the findings are still inconclusive. Much of this deals with the impact on students of informal, progressive or open teaching styles and relates that impact to variables such as personality, ability and sex (see reviews by Bennett, 1976; Soar, 1972, Trown, 1973). This research does not indicate general superiority of one style of instruction over another, but does suggest that the effects of informal, progressive or open education vary for different students. In the most widely publicised recent study Bennett (1976), found that students in formal classes generably outperformed those in informal classes, and that these effects varied according to sex, personality and subject matter.

The present study is one of several designed to examine relationships between program openness and type of classroom for teachers and students with differing personality characteristics. It is widely believed among teachers and administrators that some teachers and students are better suited than others to the informality, variety and spontaneity which are found in open education programs. These beliefs are supported by the work of Hunt and others (Harvey, Hunt and Schroder, 1961; Hunt, 1971, 1974) on conceptual level. Their findings suggest that teachers and students with low conceptual level (high need for structure) will be better suited to educational programs in which details are carefully planned, rules are clear, and there is a high degree of order and predictability. Those with high conceptual level (low need for structure) have considerable tolerance for ambiquity and are likely to find enjoyment in programs which have significant elements of unpredictability, spontaneity and flexibility.

In the first study in which these relationships were examined there were some unexpected results (Allen, Hamelin and Nixon, 1976). It had been expected that teachers with high need for structure would have greater job satisfaction in relatively closed programs and in self-contained classrooms, and that those with low need for structure would have greater job satisfaction in open programs and in open area classrooms. However, the job satisfaction of teachers with high need for structure (as measured by the conceptual Systems Test, Harvey and Hoffmeister, 1971) did not differ significantly in open area or self-contained classrooms, or in open or closed programs. Teachers with low need for structure had greater job satisfaction in open programs as predicted, but unexpectedly had greater job satisfaction in self-contained classrooms than in open areas.

The most likely explanations for these findings seemed to be that teachers with high need for structure could control the classroom environment sufficiently to ensure the predictability and order that they required, even when programs were 'open', and hence were relatively unaffected by variations in program openness and type of classroom.

On the other hand, teachers with low need for structure might well experience difficulty in situations which require careful planning and co-ordination, and experience greater job satisfaction in self-contained classrooms where spontaneous and creative teaching would not interfere with the activities of others.

The second study (Allen, 1977) dealt with the effects of matching students with different levels of need for structure with three alternative sets of learning environments; different types of classrooms, open and closed programs and teachers with differing levels of need for structure. The dependent variable selected was attitude to school, in the belief that attitudes might be more quickly responsive than achievement to changes in the physical and cultural environment. No relationship was found between type of classroom and children's need for structure; closed programs were associated with more positive attitudes than open programs for children at all levels of need for structure, a result which was unexpected for those with low need for structure; and attitudes were more positive when children were matched with teachers with similar need for structure to themselves.

The latter finding gave general support to Hunt's (1974) proposals for matching students with programs on the basis of their need for structure, though it indicated that the teachers need for structure may be more influential than characteristics of the program. Both these studies gave clear indications that need for structure is an important factor which can influence the relationship between type of classroom and openness of programs. However, the unexpected findings and the relatively small sample size (35 classrooms in the first study, and 297 students in the second) made it advisable to conduct further research relating to the same question.

This study was designed to replicate the research by Allen, Hamelin and Nixon using a different measure of need for structure, and to extend it by asking whether children's attitudes were affected in a way similar to teacher's

job satisfaction by program openness, type of classroom and the teacher's need for structure.

PROCEDURE

A sample of 56 grades 5 and 6 teachers was identified in the Vancouver and Burnaby school districts in British Columbia. Open area classrooms were identified by school district staff in a cross section of socio-economic areas within the two cities, and for each open area classroom a self-contained classroom was identified in a neighbouring school drawing on a similar SES population. Teachers in these classrooms were then invited to participate. This procedure resulted in a sample of 27 open area classroom teachers and 29 self-contained classroom teachers. Since random selection was not feasible this approach seemed the best way of ensuring that the populations of students in the two types of classrooms were at least reasonably comparable.

The open area teachers were asked about the pattern of organisation in their classrooms. Where there was extensive use of team teaching and the students were not primarily associated with a single teacher, the program openness and teacher's need for structure scores were combined and a mean score obtained for the group. This situation was found in four open areas involving 10 of the teachers in the sample. In other open area classrooms where students spent a majority of their time with one of the teachers the students' data were related to the scores of that teacher only.

Teachers completed three instruments; a job satisfaction index (Brayfield and Rothe, 1951), the Teacher Questionnaire (Walberg and Thomas, 1971), and the Paragraph Completion Test (Hunt, Greenwood, Noy and Watson, 1973).

The Teacher Questionnaire was selected over other instruments for measuring program openness because it was relatively easy to administer and score, and because of the very high correlation found by Walberg and Thomas between teachers questionnaire responses and classroom observations. This was particularly important because financial constraints made it impossible to validate the teachers responses with classroom observations. Scores on the Teacher Questionnaire were divided into upper and lower halves. Scores of 136 or more were considered to represent open programs and scores of 135 or less to represent closed programs.

The Paragraph Completion Test requires subjects to write open ended statements extending six incomplete sentences. The statements are rated 0, 1, 2 or 3 on the basis of cognitive complexity or conceptual level according to a scale developed by Hunt and his associates, and the three highest ratings averaged to obtain a score. A high score indicates high conceptual level and low need for structure. A low score indicates low conceptual level or high need for structure. In this study teachers with scores 2 or more were considered to have low need for structure and those with less than 2 to have high need for structure.

Students completed the School Sentiment Index - Intermediate Level (Instructional Objectives Exchange, 1972). This instrument yields a total score for attitude toward school with sub-scales relating to mode of instruction, interpersonal relationships, authority and control, social structure and climate, peers, and general.

The combination of two levels of program openness, two levels of teachers need for structure, and two types of classroom resulted in eight treatment groups. One way analysis of variance was used to test the significance of the differences in job satisfaction and school sentiment index scores with differences accepted as significant at the .05 confidence level. Where differences were found the LSD procedure for multiple range tests (Kirk, 1968) was used to find out which group or groups differed from the others.

RESULTS AND DISCUSSION

Table 1 shows a comparison of mean job satisfaction scores obtained in this study and in the earlier one by Allen, Hamelin and Nixon. In both studies significant differences were found between groups of teachers with low need for structure, but not for those with high need for structure. This confirms the earlier conclusion that low need for structure teachers may be more sensitive to elements of the external environment than those with high need for structure. The most likely explanation is that teachers with high need for structure have sufficient control over the educational environment to establish the conditions which they find congenial. Low need for structure teachers, though possibly having the same capacity for control, may be more accepting of what comes and less inclined to exercise that capacity.

In the Allen, Hamelin and Nixon study higher scores were found for teachers with low need for structure in open programs and in self-contained classrooms. In this study the scores in open area programs were substantially higher than those in closed programs, but there were no differences between self-contained and open area classrooms. This variation in results is intriguing and warrants further investigation.

There are several possible explanations though they must be considered very tentative. In the earlier study, based on data gathered in 1974 and 1975, most of the open area classrooms had been established during the preceding two years and the teachers were relatively inexperienced in that kind of situation. Since that time the number of open area classrooms has remained about the same, and most of those included in the sample have been in operation for a number of years. It is quite possible that the earlier set of findings may reflect the inexperience and possible confusion of teachers struggling to find ways of teaching effectively in a new type of classroom environment, or that the second set may reflect a pattern of self selection as an increasing proportion of teachers in open area classrooms have tried themselves out in that type of environment, liked it, and elected to remain. A third possibility is that there may now be a higher degree of compatibility among teachers in open area teams. It is now very common for teachers in open area classrooms to play a major role in the selection of new team members whenever a vacancy occurs.

Unfortunately, data on age of open area classrooms, years of experience in open areas and hiring practices were not obtained in either study, so it is not possible to check the explanations.

Table 2 shows a comparison of mean scores of children on the School Sentiment Index (SSI) in classes taught by teachers with high and low need for structure, in open area and self-contained classrooms, in open and closed programs.

The attitudes of students were significantly more positive under three of the eight treatment conditions, that is, when involved in open programs taught by teachers with low need for structure and when involved in closed programs in self-contained classrooms taught by teachers with high need for structure. The results may be summarised by saying that neither the job satisfaction of teachers with high need for structure nor, with one exception, the attitudes towards school of students taught by those teachers were influenced by

different combinations of type of classroom and program openness. However, where teachers had low need for structure, teachers' job satisfaction was lower in relatively closed programs and children's attitudes were more positive in relatively open programs.

An explanation of the result on job satisfaction has already been offered, that is, that teachers with low need for structure may exercise less control over their environment and be influenced by variations in that environment to a greater extent than teachers with high need for structure. Hunt's work on conceptual level suggests that under these conditions teachers with low need for structure would be less comfortable in closed than in open programs.

The same line of argument can serve as an explanation of the pattern of students' scores. In situations where teachers with low need for structure are involved w h programs with which they are compatible (open programs) it is reasonable to expect children's attitudes to be more positive, and in situations where teachers with low need for structure are involved with programs with which they are not compatible (closed programs) children's attitudes would be expected to be less positive.

However, the notion of compatibility between teacher and program does not adequately explain why in most cases the scores of children taught by teachers with high need for structure should be lower. The general explanation suggests that teachers with high need for structure establish a compatible environment in spite of the external conditions. The students' scores suggest that there may be a limit to the degree to which this can be achieved. The most likely explanation seems to be that teachers with high need for structure are better suited to closed programs and to self-contained classrooms as predicted in the general discussion at the beginning of this paper, but that they are able to adapt their surroundings in other situations sufficiently to maintain reasonably high levels of job satisfaction. However, this process of adaptation is not sufficiently effective to alter less positive students' attitudes brought about by the initial lack of compatibility between teacher's personality characteristics and the classroom environment. This explanation seems reasonable and is consistent with related theory, however, it must be considered speculative until confirmed through additional research.

The major purposes of this study were to replicate an earlier investigation and to determine whether students responded in the same way as teachers to

various combinations of type of classroom and program characteristics.

Some of the findings have been confirmed and might now be stated with some confidence. Others, particularly because of the necessarily small size of the sample and the absence of supportive descriptive data, must be regarded as tentative. However, the consistency of the findings with theory advanced by Hunt et al suggests that they are at least worthy of further investigation.

SPECIAL NOTE

The research reported here is part of a larger investigation in which students' achievement, students' SES and language background, and variations in program openness in different parts of the curriculum are also being considered. Unfortunately, the analysis of these data has not yet proceeded to a point where results could be presented.

TABLE 1

Mean Job Satisfaction Scores for Teachers with High and Low Need for Structure Offering Open and Closed Programs in Open Area and Self-Contained Classrooms.**

	Closed Program		Open Program		Closed Program	Open Program	TOTAL
	OA	SC	OA	SC			
Low Need for Structure	N=6	N=7	N=8	N=6			
	68.00	69.13	78.33	75.75	63.61	77.22*	73.08
	(71.33)	(77.94)*	(74.20)	(82.18)*	(73.12)	(78.38)*	(77.23)
High Need for Structure	N=6	N=8	N=9	N=6			
	74.60	73.88	75.64	77.75	74.19	76.48	75.37
	(75.86)	(74.54)	(77.73)	(78.75)	(75.00)	(78.16)	(76.54)

* $P < .05$

** Figures in brackets show scores obtained by Allen, Hamelin and Nixon (1976).

TABLE 2

Mean scores on the School Sentiment Index for Children in Classes Taught by Teachers with High and Low Need for Structure, Offering Open and Closed Programs in Open Area and Self-Contained Classrooms

	Closed Program		Open Program		Closed Program	Open Program	TOTAL
	OA	SC	OA	SC			
Low Need for Structure	N=6	N=7	N=8	N=6			
	56.66	56.39	60.18	60.36	56.51	60.26*	58.45
High Need for Structure	N=6	N=8	N=9	N=6			
	56.34	59.21*	57.20	56.28	57.98	56.83	57.39

$P < .05$

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